PICTURE OF THE MONTH

THREE HURRICANES ON ONE SATELLITE PASS

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On September 16, 1967, the ESSA weather satellite photographed three hurricanes on one orbit (fig. 1). This was a noteworthy first. Multiple tropical storm passes are not particularly uncommon. As a matter of fact, they date back to the first hurricane season under satellite surveillance, 1961. On September 11 of that year, hurricanes Debbie and Esther were both seen by TIROS III during orbit 881. The unusual fact concerning the picture of the month (fig. 1) is that three hurricanes were photographed.

During the last 82 yr., including 1967, there have been only 30 days when three or more hurricanes occurred simultaneously. If we consider the hurricane season as extending from June 1 through Nov. 30 (this represents approximately 15,000 days for an 82-yr. period), the chances of having three hurricanes on a given day are about 1 in 500. If we further examine the possibility of all three storms being alined along a satellite pass the odds are even greater. The ESSA satellite series cover a swath approximately 1,500 mi. wide. Using this limitation, it was found that hurricanes would have been in the correct position on only 10 of the 30 days. Even then, the orbit would have had to have been just right to photograph all three hurricanes. Assuming success in every case, the odds become 1 in 1,500. However, past records show that 3-hurricane days have occurred only in August and September. If we restrict our attention to these months, the probability of occurrence increases 1 in 500.

Viewed from another standpoint, we can determine the chances of a given year producing a three-hurricane pass. A closer examination of the 10 days already mentioned reveals they tend to be clustered into active periods. For example, 1893 produced 5 days, 1950, 3 days, and 1961 and 1967, 1 day each. This means that in the last 82 yr. about 1 yr. in every 20 has produced a day which would have yielded a photograph such as the picture of the month. Regardless of the viewpoint, the event is rare enough to warrant recognition.

It is interesting to note that the 5 days in 1893 occurred during the most active hurricane period on record. For 15 days extending from August 15 to the 29th three hurricanes were tracked and during 9 of these days, four hurricanes were in existence.

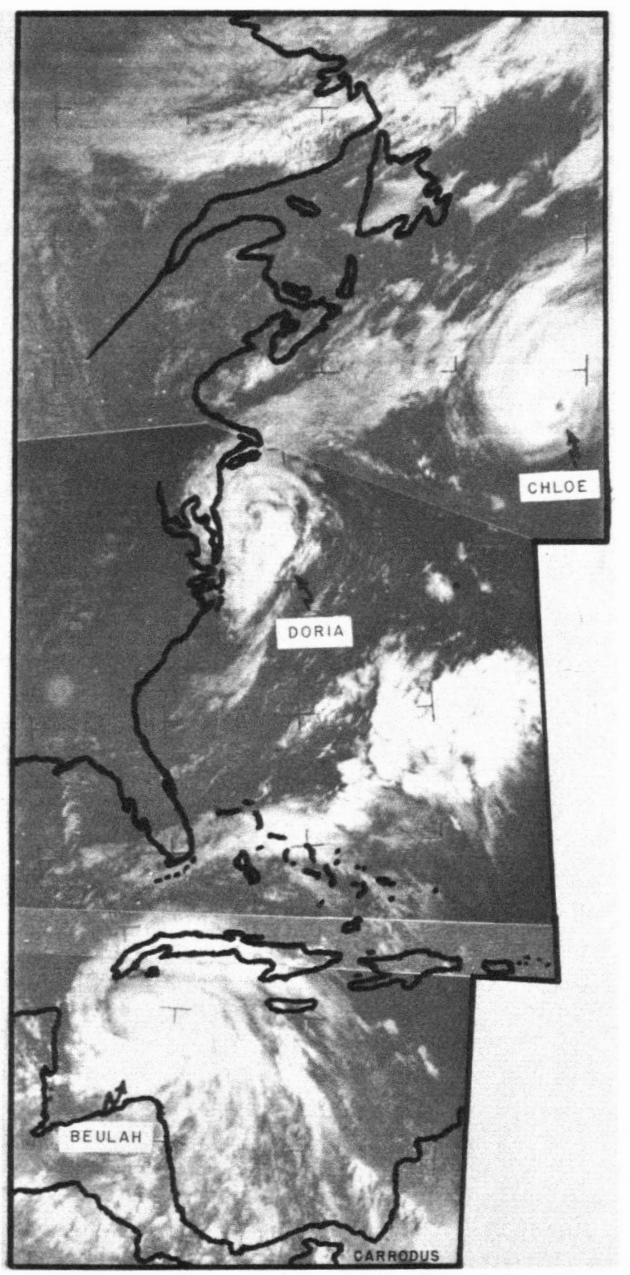

FIGURE 1.—ESSA 2, pass 7166, Miami, Fla. APT photomosaic, 1240 GMT, September 16, 1967.

The surface map for Sept. 16, 1200 GMT (fig. 2) shows that Beulah and Chloe were about the same strength with a central pressure around 970 mb. Doria, on the other hand, was only a minimal hurricane with maximum winds of 65 kt. The APT mosaic (fig. 1) reveals that Chloe and Beulah were much better organized with well-defined cirrus shields and good low-level banding. The eye of Chloe is easily seen. At the time of the picture Chloe was moving northward and a few hours later recurved northeastward into the westerlies. Beulah was tracking west-northwestward to a rendezvous with the Northern Yucatan Peninsula while Doria was drifting southwestward toward the mouth of the Chesapeake Bay. Besides the three hurricanes, a fourth area of cloudiness is shown northeast of the Bahama Islands which was associated with a very weak trough of low pressure.

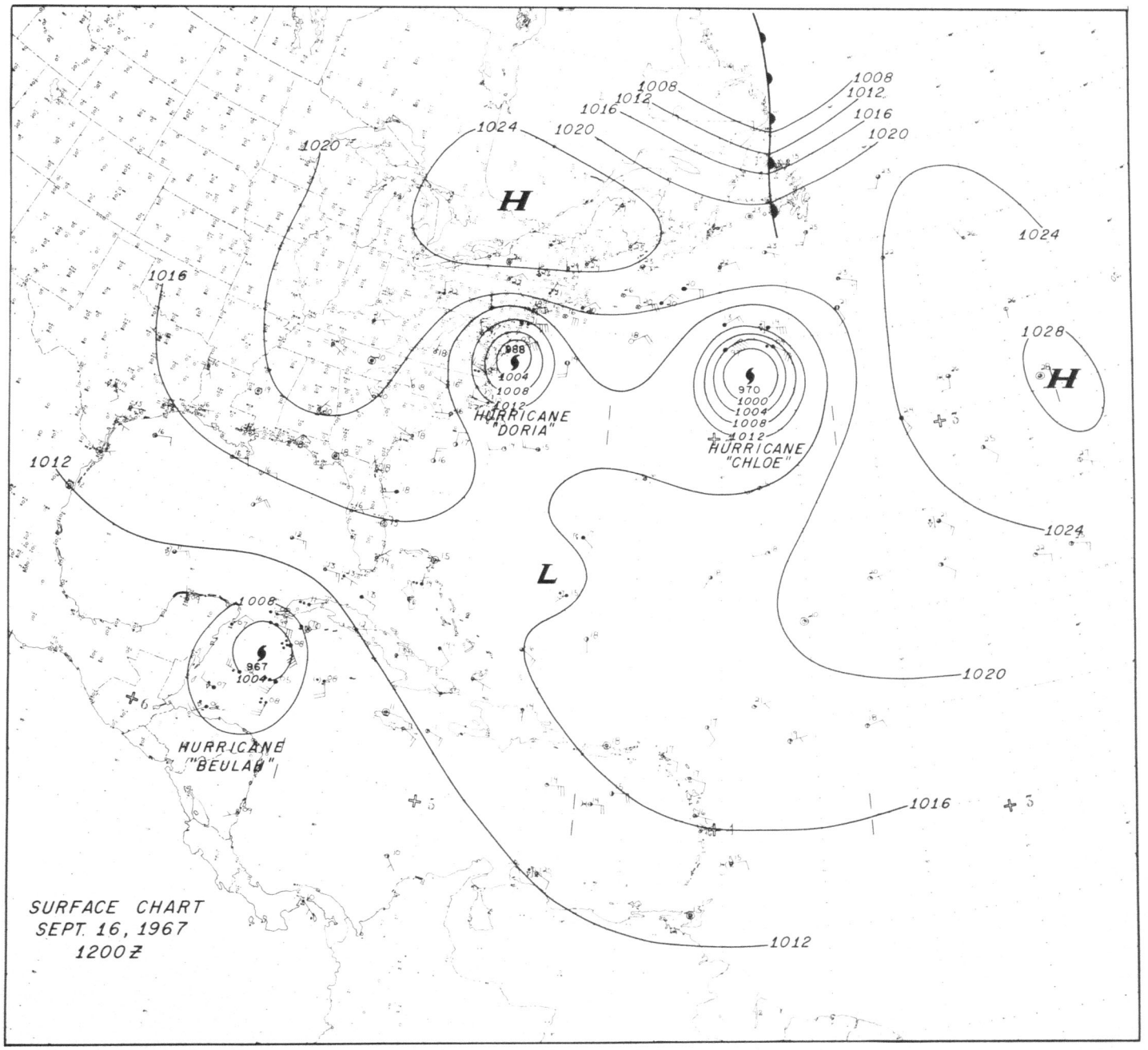

FIGURE 2.—Surface analysis, 1200 GMT, September 16, 1967.